Amendments to the Specification

Please replace the paragraph beginning at page 1, line 11, with the following amended paragraph:

The laser is a basic tool in various research fields. When utilizing lasers, in order to realize high precision and high repeatability in measurement, it is necessary to control the laser such that the frequency of the laser beam coincides with a specific reference value (i.e., the frequency of the laser should be stabilized). In a cell, atoms move at various velocities. Thus, the resonance frequencies that are characteristic to atoms include a Doppler shift. The amount of the frequency shift depends on the various velocities of atoms. The absorption spectrum generated from laser irradiation comprises various Doppler spectrums from atoms of various velocities. In this spectrum, resonance lines characteristic to the atoms velocities are overlapping and cannot be observed separately. A sub-Doppler spectrum, which is another resonance spectrum characteristic to the atoms is clearly separated from the Doppler spectrum and is obtainable by various ways. To obtain better stability, a sub-Doppler spectrum of atoms or molecules is generally used as an absolute frequency reference. Narrow atomic (molecular) lines observed by saturated absorption spectroscopy (H. Talvitie, M. Merimaa, E. Ikonen: Opt. Commun. 152, 182 (1998), S. Ohshima, Y. Nakadan, Y. Koga: IEEE J. Quantum Electron. QE-23, 473 (1987), U. Tanaka, T. Yabuzaki: Jpn. J. Appl. Phys. 33, 1614 (~~1997~~ 1994)) or selective reflection spectroscopy have been used for laser frequency stabilization (R. N. Li, S. T. Jia, D. Bloch, M. Ducloy: Opt. Commun. 146, 186 (1998)).

Please replace the paragraph beginning at page 1, line 28, with the following amended paragraph:

Recently, transmission spectroscopy utilizing a thin vapor cell has attracted considerable

attention as a simple new method of sub-Doppler spectroscopy and as a useful technique for attaining laser frequency stabilization. A single light beam transmission spectroscopy with an ultra thin Cs cell (10 to 100 μm end-wall gaps) was used to obtain sharp resonance which originated from the coherent Doppler narrowing (S. Briaudeau, S. Saltiel, G. Nienhuis, D. Bloch, M. Ducloy: Phys. Rev. A 57, R3169 (1998)]. On the other hand, the optical pumping in of a thin vapor cell also produces a non-Maxwellian velocity distribution, which appears as a sub-Doppler structure in the absorption spectrum of the probe beam (A. Izmailov: Opt. Spectrosc. ~~75~~ 74, 25 (~~1994~~ 1993), M. Tachikawa, K. Fukuda, S. Hayashi, T. Kawamura: Jpn. J. Appl. Phys. 37, L1559 (1998)).